

REMARKS

Allowable Subject Matter

Applicants appreciate the Examiner's acknowledgement of the allowability of claims 7–14, 26, and 27. Applicants amend claim 7 to rewrite it in independent form, including the limitations set forth in the claims from which it depended, and to improve form. Applicants therefore request withdrawal of the objections to claim 7. Claims 8–14 depend from claim 7. Applicants therefore request withdrawal of the objections to these claims, as well.

Claims 26–27 depend from claim 22, which, as Applicants illustrate below, is patentable over the cited references.

Independent Claims 1 and 19–22 are Patentable Over the Cited References

Claim 1 stands rejected under 35 U.S.C. 103 over U.S. Patent No. 6,304,556 to Haas (“*Haas*”) in view of U.S. Patent No. 5,987,011 to Toh (“*Toh*”). Applicants amend claim 1 to incorporate the limitations set forth in original claims 2 and 3 (which now depend from new claim 32). In addition claim 1 is amended to improve form.

Claim 1 relates to a mobile communications station in a clustered network architecture. In particular, amended claim 1 recites a mobile communications station including an electronic processor configured to determine the strength of a signal received from a second communications station. Claim 1 further recites that the electronic processor is configured to determine whether to communicate with the second communications station either directly or to communicate with the second communications station by routing messages through an affiliated cluster head based on the determined signal strength.

Neither *Haas* nor *Toh* teach or suggest an electronic processor that is configured to determine whether a communications station should communicate with a member station directly or through a cluster head based on the strength of a signal received by the communications station. In contrast, *Haas* discloses using a zone-based routing scheme to find efficient communications paths to member stations. *Haas* does not disclose basing routing decisions on the strength of signals received from target member stations. In *Haas*, MRCs, similar in many respects to cluster heads, are used only for generating routing information in the form of a spine

route. Col. 9, Ins. 32–44. The spine route is then used to limit a the Route Discovery Procedure described in *Haas* which avoids concentrating routes through the MRCs. Col. 9, Ins. 48–54. Thus, *Haas* teaches away from routing messages through cluster heads altogether.

Toh fails to cure this deficiency in *Haas*. In particular, *Toh* fails to evaluate signal *strength*. *Toh* discloses determining node connections based signal stability. Col. 3, Ins. 25–30. Stability, in *Toh*, is measured based on the *number* of ticks a communications station receives from a member station. Col. 3, Ins 31–37. *Toh* discloses that receipt of a larger number of ticks from a given member station indicates that the member station is moving relatively slowly in relation to the communications station and is therefore more likely to be a viable communications channel over an extended period of time. Col. 6, Ins. 33–43. *Toh* fails, however, to disclose any evaluation of the strength of any of the received ticks, or basing a routing decision based on such an evaluation.

Haartsen also fails to cure the deficiencies of *Haas* and *Toh*. *Haartsen* discloses a wireless communications system in which received signal strength indicators are evaluated to select communications channels (Abstract), and to determine which base station a mobile radio device should communicate through. With respect to the former, channel selection is not the same or the equivalent of route determination. With respect to the latter, base station selection relates to determining the first hop in a larger communication chain to reach a target, not determining whether or not a transmission should be sent directly to target. Base station selection is more analogous to the selection of one out of a number of cluster heads through which to indirectly route messages. *Haartsen* therefore does not teach or suggest determining whether a message is to be sent to a member station directly, or through a cluster head, based on received signal strength as recited in claim 1.

None of the cited references teaches or suggests determining whether a message is to be routed directly to a target communication station or whether the message is to be routed through a cluster head based on an evaluation of the strength of a signal received from that target, as recited in claim 1. Applicants therefore request reconsideration and withdrawal of the §103 rejection to claim 1. As claims 3–6 and 15–17 depend from claim 1, directly or indirectly, and add additional limitations thereto, Applicants request reconsideration and withdrawal of the §103 rejections of these claims, as well.

Independent claims 19–22 include similar limitations to those included in independent claim 1. Applicants therefore request reconsideration and withdrawal of the §103 rejections of claims 19 – 22. Claims 23–27 depend upon claim 22 and add additional limitations, thereto. Applicants respectfully request reconsideration and withdrawal of the §103 rejections to these claims, too.

New Independent Claims 32, 38, and 40 Are Patentable Over the Cited References

New independent claims 32, 38, and 40 relate to a transmitting communications station determining whether a second communication station is within one radio hop of a first communications station. The claims further relate to the first communications station communicating directly with the second communications station if it is within one radio hop from the first communications station and communicating via a cluster head if the second communications station is not within one radio hop from the first communications station. None of the cited references teaches or suggests such a combination. Neither *Haas* nor *Toh* teach or suggest determining whether one communications station is within one radio hop of another communications station. *Haartsen* fails to teach or suggest a transmitting communications station choosing between communicating with a target station either directly or through a cluster head depending upon whether the target is within one radio hop away. Applicants therefore respectfully request that claims 32, 38, and 40, and claims 2, 33–37, 39, and 41, which depend upon claims 32, 38, and 40, be passed on to allowance.

CONCLUSION:

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response other than as reflected on the enclosed Fee Transmittal. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. BBNT-P01-057 from which the undersigned is authorized to draw.

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Respectfully submitted,

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